

REMARKS***Allowable Subject Matter***

Applicants gratefully acknowledge the indication by the Examiner that claims 2-8 and 10-16 would be allowable if rewritten in independent form to include all of the limitations of the base claims and intervening claims. Claims 2-8 and 10-16 have been objected to as being dependent upon rejected claims 1 and 9. Claims 2-8 and 10-16 remain unchanged in the present reply. In light of the reasons set forth below, allowance of all of the claims is respectfully requested.

Claim Rejections – 35 U.S.C. §102

Claims 1 and 9 have been rejected under 35 U.S.C. §102(e) as being allegedly anticipated by Nakamura et al. (US 6,798,807). This rejection is respectfully traversed.

As discussed in the previous amendment filed on September 25, 2006, the presently claimed invention addresses the problems associated with scribing light emitting surfaces. When light emitting surfaces are scribed, a cleavage plane is formed on the light emitting side. However, particularly when a ridge waveguide structure is formed on the upper cladding, a scribing force is transferred from the sapphire substrate to a lower portion of the mesa structure and the ridge at the upper portion of the mesa structure, resulting in the scribing force being too concentrated, thus resulting in non-uniform cleavage planes. In other words, the shapes of the cleavage planes are different from chip to chip even when the chips are manufactured on the same scribing conditions. When scribing the mesa structure, by transferring the scribing force from the sapphire substrate to the mesa structure,

the scribing force is concentrated on a lower corner of the mesa structure so that cracks occur at the lower corner of the mesa structure as shown in the dotted triangle of Figure 3, for example. Here the cracks are transferred to the light exiting surface. Various cracks in the rough cleavage plane result in the decreased optical output and an increased operating current.

The presently claimed invention can address these types of problems. Specifically, as recited in claim 1, for instance, the semiconductor laser device includes a multi-semiconductor material layered mesa structure having a laser resonance layer on a substrate and cladding layers formed over and below the resonance layer. The semiconductor laser device includes rounded corners connected to the substrate, in a lower portion of the mesa structure. The rounded corners are represented by 121a in an exemplary embodiment.

Claim 9 is similar to claim 1, but recites that the current injection ridge is accompanied by force distribution ridges formed on an upper portion of the mesa structure, which protrude from the upper surface of the mesa structure, and which are represented by the current injection ridge 151a and the force distribution ridges 141b in Figures 5 and 6, for example.

Applicants respectfully submit that the presently claimed invention is not anticipated by the applied art. A review of the prior art reveals that the applied art does not appreciate the problem of the prior art identified in the present application, nor does it suggest that rounded corners provide a solution to any problem. The isolation trench 32 of the Nakamura et al. system is generated by merely etching multilayered semiconductor layer with a photoresist film 41a as an etching mask. Apparently, etching mask are used to transfer its planar pattern and the depth of

etching is generally uniform within an engineering tolerance unless the width of the trench 32 is adjusted to generate a specific shape, such as a V-shaped trench in Figure 29 of the Nakamura et al. patent. There is no supporting disclosure suggesting that the rounded corner was intentional or actually apparent in the device as designed or made. As such, if the trench 32 has rounded corners, the rounded corners would simply represent technical by-product in etching the trench 32 of the Nakamura et al. system.

In terms of claim language, the ridge 16 of the Nakamura et al. patent is not "formed on an upper portion of the mesa structure and protruding from an upper surface of the mesa structure as recited in claim 1. Instead, it is coplanar with the upper surface of the overall structure. Also, the layers 9 of the anode and cathode structures are not a current injection ridge and force distribution ridges formed on an upper portion of the mesa structure and protruding from an upper surface of the mesa structure" as recited in claim 9. These are all coplanar with the device's upper surface.

In light of the foregoing, Applicants respectfully submit that the applied art does not anticipate the present invention, and claims 1 and 9 are allowable.

Conclusion

Based on the reasons as set forth above, Applicants respectfully request allowance of all pending claims.

In the event that there are any questions concerning this paper, or the application in general, the Examiner is respectfully urged to telephone Applicants' undersigned representative so that prosecution of the application may be expedited.

Respectfully submitted,

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